

Listing of Claims:

1. (Previously Presented) A camera support comprising:

a pan frame including a pan housing, a pan arm rotatably attached to the pan housing and a pan motor for moving the pan arm relative to the pan housing;

a tilt frame including tilt housing, a tilt arm rotatably attached to the tilt housing and a tilt motor for moving the tilt arm relative to the tilt housing, and with the tilt frame securable onto the pan arm at multiple positions along the pan arm;

a roll frame having a roll housing and a camera platform rotatably attached to the roll housing, and a roll motor for moving the camera platform relative to the roll housing, and with the roll frame securable to the tilt arm at multiple positions along the tilt arm; and

a pan lock pin moveable between a lock position where the pan lock pin extends between the pan housing and the pan arm, to prevent movement between the pan housing and the pan arm, to an unlock position wherein the pan lock pin is withdrawn from one of the pan housing and the pan arm, to allow rotational movement between the pan housing and the pan arm.

2. (Original) The camera support of claim 1 with the tilt frame slidably attached to the pan frame, and including a locking element movable into an open position, to allow sliding movement between the pan frame and the tilt frame, for adjusting the relative position of the tilt frame to the pan frame, and with the locking element also moveable into a locked position, to lock the tilt frame into a fixed position on the pan frame.

3. (Original) The camera support of claim 1 further comprising a worm gear on the pan motor meshing with a drive gear linked to the pan through a clutch.

4. (Original) The camera support of claim 1 further comprising a slip ring assembly in each of the pan, tilt and roll housings, and with water proof cable segments extending between the slip ring assemblies.

5. (Original) The camera support of claim 1 further comprising a sealed bearing in the pan housing, providing a low friction rotation connection between the pan arm and the pan housing.

6. (Original) The camera support of claim 1 further comprising a first pair of waterproof connectors between the pan housing and the tilt housing, a second pair of waterproof connectors between the tilt housing and the roll housing, and a third pair of waterproof connectors on the camera platform.

7-8. (Cancelled).

9. (Original) The camera support of claim 1 further comprising an adjustable pan brake to set pan axis braking force.

10. (Original) The camera support of claim 1 further comprising a pan shaft in the pan housing, with the pan motor connecting to the pan shaft via gearing, and with the pan shaft sealed against the pan housing and rotatable within the pan housing when driven by the pan motor.

11. (Original) The camera support of claim 1 further comprising seals in the pan housing, the tilt housing and the roll housing, for sealing water out of each of the housings, to allow for underwater operation of the camera support.

12. (Previously Presented) A camera head comprising:
a first frame;
a first arm rotatably attached to the first frame;

a first motor for rotating the first arm relative to the first frame, with the first motor enclosed within a sealed first housing;

a second frame attached to the first arm;

a second arm rotatably attached to the second frame;

a second motor for rotating the second arm relative to the second frame, with the second motor enclosed within a sealed second housing;

a first shaft rotatably supported within the first housing, with the second frame attached to the first shaft, and the first shaft sealed against the first housing, a first gear linked to the first shaft through a first clutch, and with the first gear linked to the first motor, and one or more clutch drive pins sealed against the first housing, and moveable from a first position, wherein the first motor drives the first shaft through the first clutch, to a second position, wherein the first shaft can rotate free of the motor.

13. (Original) The camera head of claim 12 further comprising a third frame, a third arm rotatably attached to the third frame, and a third motor for rotating the third arm relative to the third frame, with the third motor enclosed within a sealed third housing.

14. (Original) The camera head of claim 12 wherein the first and second sealed housings are waterproof, to allow for underwater operation of the camera head.

15-17. (Cancelled)

18. (Previously Presented) The camera head of claim 23 further comprising a tube adapter having a tube nipple and a base plate, with the tube adapter attached to the first slip ring assembly and to the first housing, first seal sealing the base plate to the first slip ring assembly, and a second seal sealing the slip ring assembly to the first

housing, to provide a waterproof connection for wires leading into the first slip ring assembly.

19. (Original) The camera head of claim 12 further comprising a position locking device moveable from a locked position, wherein the locking device prevents movement between the first arm and the second housing, to an unlocked position, wherein the second housing can move relative to the first arm, to adjust the size of the camera head.

20-22. (Cancelled)

23. (Previously Presented) A remote camera head comprising:

a first frame;

a first sealed housing on the first frame;

a first arm rotatably attached to the first frame;

a first motor for rotating the first arm relative to the first frame, with the first motor enclosed within the first sealed housing;

a second frame attached to the first arm;

a second sealed housing on the second frame;

a second arm rotatably attached to the second frame;

a second motor for rotating the second arm relative to the second frame, with the second motor enclosed within the second sealed housing;

a first hollow shaft rotatably supported within the first sealed housing, with the second frame attached to the first shaft, and the first shaft sealed against the first sealed housing;

a first gear linked to the first shaft through a first clutch, and with the first gear linked to the first motor;

- a first slip ring assembly extending into the first hollow shaft;
- a first shaft plug within and sealed against the first hollow shaft;
- a first electrical cable extending into a first end of the first slip ring assembly via a waterproof connection; and
- a second electrical cable extending through a waterproof connection in the first shaft plug and into a second end of the first slip ring assembly.

24. (Previously Presented) A camera support comprising:

- a first housing having a first interior sealed space;
- a first motor in the first interior sealed space;
- a first purge gas port on the first housing connecting into the first interior sealed space, for delivering a purge gas into the first interior sealed space;
- a second housing having a second interior sealed space, and with the second housing linked to the first motor for rotational movement of the second housing relative to the first housing about a first axis;
- a second motor in the second interior sealed space;
- a second purge gas port on the second housing connecting into the second interior sealed space, for delivering a purge gas into the second interior sealed space;
- a third housing linked to the second motor for rotational movement of the third housing relative to the second housing about a second axis substantially perpendicular to the first axis.

25. (Previously Presented) The camera support of claim 24 further comprising a third interior sealed space in the third housing, and a third motor in the third interior sealed space, and a camera support plate rotatably attached to the third

housing and linked to the third motor for rotation of the camera support plate relative to the third housing about a third axis substantially perpendicular to the first axis and to the second axis.

26. (Previously Presented) A camera support comprising:

a first housing having a first interior sealed space;

a first purge gas port on the first housing connecting into the first interior sealed space, for delivering a purge gas into the first interior sealed space;

a first motor supported by the first housing;

a second housing having a second interior sealed space, and with the second housing linked to the first motor for rotational movement of the second housing relative to the first housing about a first axis,

a second motor supported by the second housing;

a second purge gas port on the second housing connecting into the second interior sealed space, for delivering a purge gas into the second interior sealed space;

a third housing linked to the second motor for rotational movement of the third housing relative to the second housing about a second axis substantially perpendicular to the first axis.

27. (Previously Presented) The camera support of claim 26 with the second housing linked to the first motor by a first arm, and with the second housing securable onto the first arm at multiple positions on the first arm, and with third housing linked to the second motor by a second arm, and with third housing securable onto the second arm at multiple positions on the second arm.

28. (Previously Presented) The camera support of claim 26 further comprising a lock pin moveable between a lock position, where the lock pin extends between the first housing and the second housing, to prevent movement between the first housing and the second housing, and an unlock position, wherein the lock pin is withdrawn from one of the first and second housings, to allow rotational movement between the first housing and the second housing.

29. (Previously Presented) The camera support of claim 26 further comprising an adjustable brake to set braking force against rotation of the second housing about the first axis.

30. (Previously Presented) The camera support of claim 26 further comprising a first shaft rotatably supported within the first housing, with the second housing attached to the first shaft, and the first shaft sealed against the first housing, a first gear linked to the first shaft through a first clutch, and with the first gear linked to the first motor, and one or more clutch drive pins sealed against the first housing, and moveable from a first position, wherein with first motor drives the first shaft through the first clutch, to a second position, wherein the first shaft can rotate free of the motor.